

The Agreements

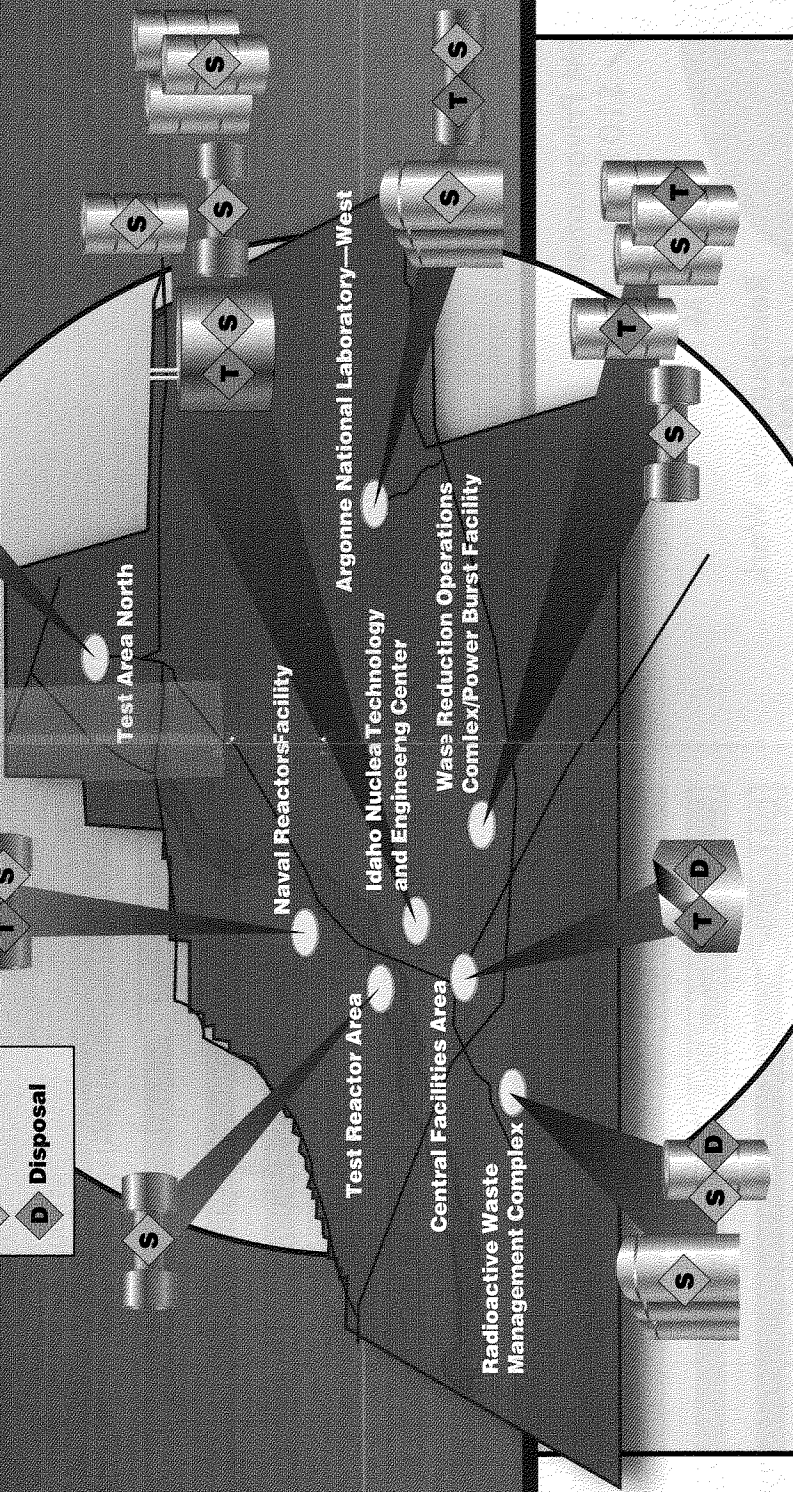
Idaho's three recent governors have signed agreements guiding environmental management at the INEEL.



Agreements Guide Environmental Management at the INEEL

- **The Federal Facility Agreement and Consent Order.** A 1991 three-party Comprehensive Environmental Response, Compensation and Liability Act agreement with the U.S. Environmental Protection Agency and Idaho Department of Environmental Quality defining the regulatory path and action plan for assessing and cleaning up historical release sites and waste from remediation activities.
- **Idaho Settlement Agreement.** A 1995 three-party court-ordered settlement agreement between the U.S. Department of Energy, the state of Idaho and U.S. Navy governing the receipt and disposition of spent nuclear fuel, and the treatment and disposal of transuranic and high-level waste.
- **Notice of Noncompliance/Consent Order.** A 1992 three-party Resource Conservation and Recovery Act agreement with IDEQ establishing actions and milestones to resolve 1989 RCRA inspection issues, including configuration of stored transuranic waste and high-level liquid waste in the Idaho Nuclear Technology and Engineering Center tank farm.
- **INEEL Site Treatment Plan.** A 1995 RCRA agreement with IDEQ implementing Federal Facility Compliance Act requirements governing the treatment and disposal of mixed low-level waste and some high-level waste.
- **Voluntary Consent Order.** A 2000 agreement under RCRA with IDEQ governing the closure of self-disclosed RCRA issues, principally 912 of the INEEL's 3,500 tanks.

2001 Milestones Met



Three Mile Island-II spent nuclear fuel is placed in dry storage

Milestones Met for all Major Agreements

- **The Federal Facility Agreement and Consent Order.** Completed all 54 milestones and contractor performance milestones and commitments for FY 2001
- **Idaho Settlement Agreement.** Completed all milestones for FY 2001
 - Transferred 27 cask shipments of Three Mile Island-II spent nuclear fuel — from Test Area North to dry storage at the Idaho Nuclear Technology and Engineering Center — six weeks ahead of schedule
 - Shipped 687 cubic meters of stored transuranic waste to the Waste Isolation Pilot Plant for permanent disposal, bringing the total shipped to 1,282 cubic meters. Another 511 cubic meters was characterized and ready for shipment (toward the *3,100 cubic meters commitment*)
- **Notice of Noncompliance/Consent Order.** Completed all milestones for FY 2001, including emptying two pillar and panel tanks as far as possible — “heel” level (all five pillar and panel tanks emptied by January 2002)
- **INEEL Site Treatment Plan.** Completed all nine milestones for FY 2001
 - Treated 48 spent high-efficiency particulate air (HEPA) filters, eight more than required and completed a month ahead of schedule
 - Processed 490,000 gallons of high-level liquid waste at the High-Level Liquid Waste Evaporator, three months ahead of the goal (processed 605,007 gallons — 1,855 cubic meters — by the end of the year)
 - Dispositioned 4 cubic meters of lead, completing actions for the entire lead cask waste stream
- **Voluntary Consent Order.** Completed 14 milestones for FY 2001 and two milestones for FY 2002

Low-Level Waste

Located at: *Radioactive Waste Management Complex*

- Disposed of off site or at the INEEL
- Governed by DOE Orders

Hazardous Waste

Located at: *Central Facilities Area*

- Characterized and shipped out of Idaho to commercial treatment and disposal facilities within a 90-day time frame after generation

Industrial Waste

Located at: *Central Facilities Area*

- Disposed of at the INEEL or at off-site landfills

Spent Nuclear Fuel

Located at: *Idaho Nuclear Technology and Engineering Center, Naval Reactors Facility and Test Area North*

- Treatment, storage and future disposal governed by the Idaho Settlement Agreement (final disposal will be off site)

Transuranic Waste

Located at: *Radioactive Waste Management Complex*

- Aboveground storage is governed by the Notice of Noncompliance/Consent Order
- Treatment and disposal of aboveground waste is governed by the 1995 Settlement Agreement/Court Order

High-Level Waste

Located at: *Idaho Nuclear Technology and Engineering Center*

- Storage governed by the Notice of Noncompliance/Consent Order
- Treatment and disposal governed by the Idaho Settlement Agreement and the INEEL Site Treatment Plan

Mixed Low-Level Waste

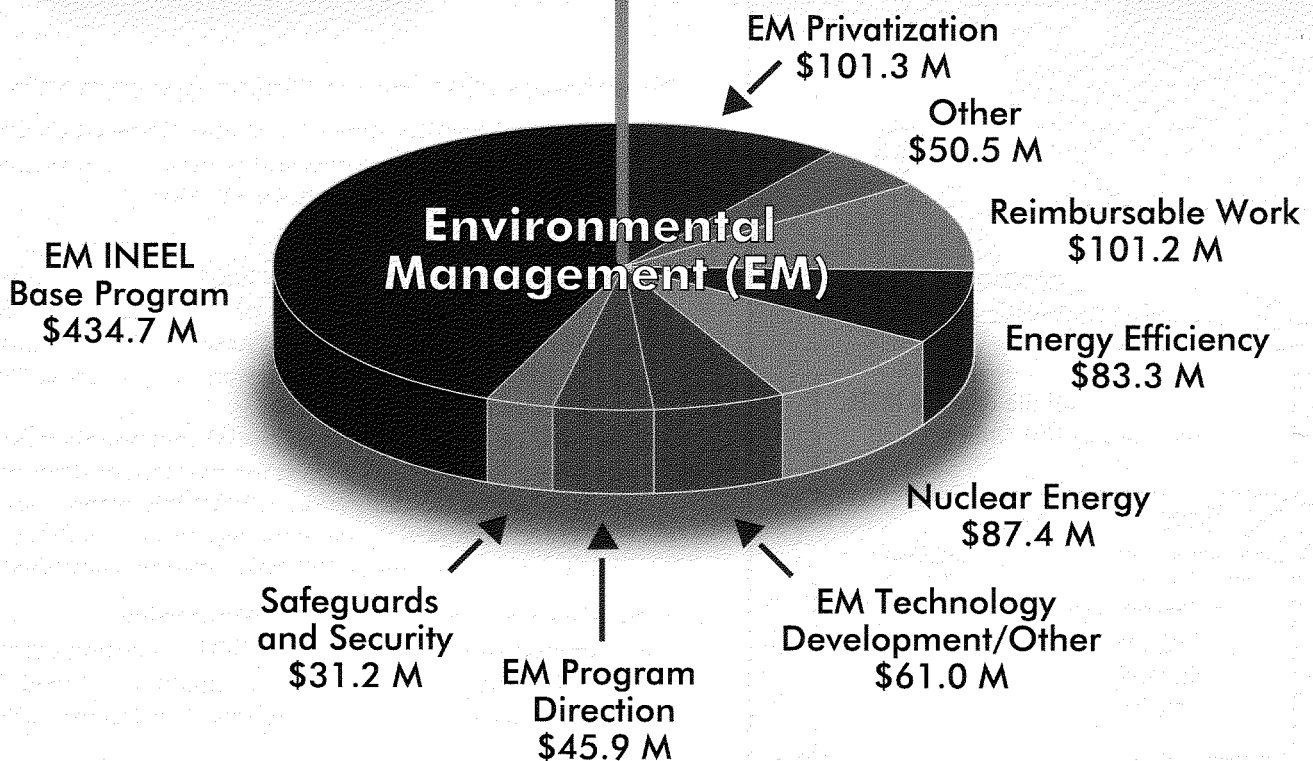
Located at: *Waste Reduction Operations Complex and Power Burst Facility*

- Treatment and final disposal governed by the INEEL Site Treatment Plan (final disposal will be off site)

Funding

**FY 2002
\$996.5 M**
(total estimated
funding for
INEEL programs)

Note: These two charts show only
DOE-Idaho Operations Office cleanup
funding. No funding or projected funding
is shown for other EM programs.

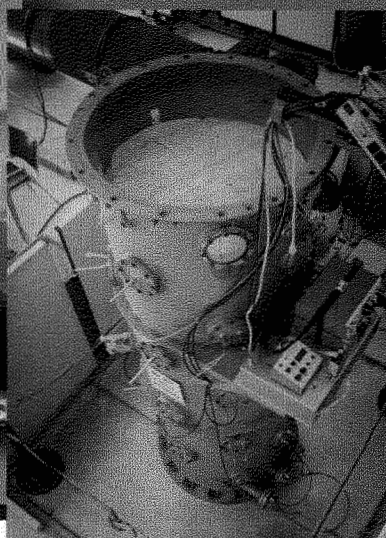


Priorities for the Future

(identified in the Letter of Intent signed May 2002 by the state of Idaho, EPA and DOE)

- Continue cleanup and protection of the Snake River Plain Aquifer
- Consolidate EM activities to the Idaho Nuclear Technology and Engineering Center, reducing the actively managed EM footprint by more than 51 percent
- Remove and stabilize sodium-bearing liquid wastes from the Idaho Nuclear Technology and Engineering Center tank farm and complete RCRA closure of the tanks
- Place EM-managed DOE spent nuclear fuel (240 metric tonnes of heavy metal) into dry storage
- Transfer all EM-managed Special Nuclear Material off site
- Complete shipments of transuranic waste required by section B.1 of the Settlement Agreement entered in *Public Services of Colorado v. Batt*, Nos. 91-0035-S-EJL & 91-0054-S-EJL (Oct. 17, 1995)
- Make significant progress in buried waste remediation in accordance with the comprehensive Remedial Investigation/Feasibility Study and Record of Decision for the Radioactive Waste Management Complex.

Science & Technology



Subsurface science research is conducted at many laboratory scales

Research and Development at the INEEL

There are many challenges associated with handling, treating and disposing of radioactive and hazardous wastes. Technologies for these problems can be extremely expensive and in some cases are nonexistent.

The INEEL delivers science-based, engineered solutions for DOE, the agencies and private industries. The research focus is on reducing costs, risks and schedules related to cleaning up the environment and managing waste. Research is often a collaborative effort involving other national laboratories, universities or private companies.

Technology Highlights

In FY 2001, the INEEL deployed 45 innovative environmental technologies or practices. Each provided significant reductions in risk, while helping to reach goals more quickly and cost-effectively.

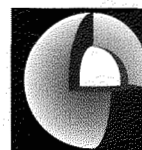
The INEEL is collecting data in the subsurface with a variety of state-of-the-art probing technologies at the Subsurface Disposal Area at the Radioactive Waste Management

Complex and INEEL-developed advanced tensiometers are monitoring the Snake River Plain Aquifer.

The Heated Gas Generation Test and Enhanced Real-Time Radiography systems are helping the INEEL prepare more waste for shipment to the Waste Isolation Pilot Plant.

Future tank remediation activities at the Idaho Nuclear Technology and Engineering Center will use a newly-developed washball and directional spray nozzle.

The INEEL constructed a new data-gathering network of wells and boreholes containing geophysical instruments next to the Idaho Nuclear Technology and Engineering Center's new percolation ponds. The network will support ongoing operations at the Idaho Nuclear Technology and Engineering Center and research and development through the Subsurface Science Initiative.



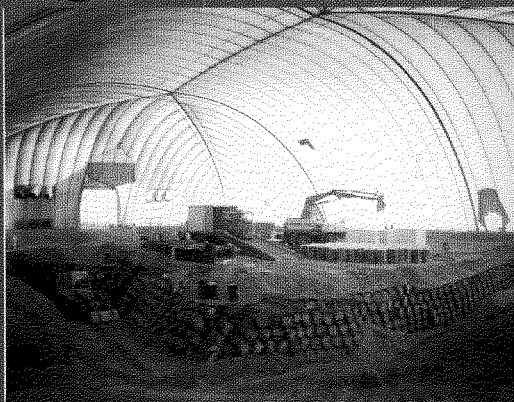
SUBSURFACE SCIENCE INITIATIVE

The INEEL's Subsurface Science Initiative is a major research undertaking to expand the understanding of subsurface contaminant fate and transport. Its goal is to develop and validate reliable predictive models, design effective containment systems and devise reliable, durable monitoring systems. These advances are critical to the success of the DOE's environmental quality mission.

The SSI research effort incorporates a broad range of scientific disciplines — geology, geophysics, hydrology, biology, chemistry and computational science — to address the DOE's nationwide environmental management needs. A world-class peer review board and recommendations from the National Research Council help guide the program.

1991 — The Roots of Environmental Management

Pad A retrieval demonstration (1979)



Warm waste pond (1991)

CFA landfills prior to closure

A Considerable and Complex Task Ahead

In 1991, more than a decade ago, the INEEL faced a considerable task and the issues were complex. The Federal Facility Agreement and Consent Order had just been signed. The agreement organized cleanup activities around the nine INEEL facility areas, and included a separate organizational unit for miscellaneous sites including the Snake River Plain Aquifer.

> Sites requiring environmental cleanup sites had been identified, and needed assessment and disposition.

Across the INEEL's 890-square-mile area — excluding Argonne National Laboratory-West and Naval Reactors Facility areas — 355 potential contaminant release sites were identified. These consisted of:

- millions of gallons of contaminated groundwater
- hundreds of acres of contaminated soil
- 88 acres of uncharacterized radioactive waste burial ground, and
- numerous uncharacterized landfills, wastewater ponds, underground storage tanks

and unexploded ordnance sites.

> Waste remaining from the Cold War needed treatment options.

Large amounts of waste needed to be stored more safely or prepared for final disposal. This included:

- 2.3 million gallons of high-level liquid waste at the Idaho Nuclear Technology and Engineering Center tank farm,
- 65,000 cubic meters of uncharacterized transuranic waste in temporary storage with no place to go, and
- large amounts of low-level and mixed low-level radioactive waste, much of it awaiting shipment off site.

> Spent nuclear fuel needed more reliable storage configurations.

Few plans had been made for how to deal with spent nuclear fuel, and most was stored in old, unreliable underwater facilities.

> Unnecessary facilities needed to be removed.

Hundreds of unused and contaminated buildings were sitting idle and needed attention.

Agencies Adopt Policy of 'Bias For Action'

As part of the Federal Facility Agreement and Consent Order, the strategy for cleanup was to show a "bias for action." This meant that while final actions on the issues were still being considered, the INEEL would aggressively pursue interim cleanup steps to protect human health and the environment.

2001 — One Decade Later

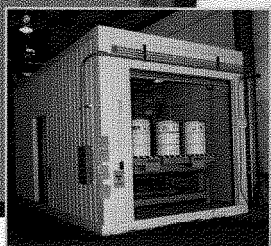


Warm waste pond (2001)

INEEL workers inspect and characterize waste drums



Workers remove tanks and soil during remediation activities



Enormous Effort Produces Significant Results

Today, the INEEL has addressed every issue it faced in 1991 and more. A decade of action has reduced the risk to workers, the public and the environment.

> Environmental cleanup has been addressed by:

- Completing more than 70 percent of the Federal Facility Agreement and Consent Order enforceable remediation milestones identified in 1991. Originally, 347 potentially contaminated release sites were identified. Since 1991, another 125 potential release sites have been identified. To date, 315 sites have been remediated, or no action was determined to be necessary.
- Deciding what remedies to apply in 22 of the 26 major areas needing remediation. The decisions — known as Records of Decision — are agreed to by DOE and the agencies. Remediation has been completed for 10 decisions, is ongoing for another eight, and four decisions are in the remedial design phase. Only four decisions remain to be made.

- Removing more than 107,000 pounds of volatile organic compounds from beneath the Radioactive Waste Management Complex
 - Completing treatment of more than 119 million gallons of contaminated groundwater
 - Capping, backfilling, grouting or otherwise stabilizing three landfills, two wastewater ponds, two burial grounds and an aboveground storage pad for transuranic waste
 - Exploding or removing significant volumes of unexploded ordnance remaining from the INEEL's historic use as a gunnery range.
- > **Waste has been addressed by:**
- Reducing the volume of liquid waste in the Idaho Nuclear Technology and Engineering Center tank farm from approximately 2.3 million gallons to less than 1 million gallons.
 - Emptying five of 11 high-level waste tanks to "heel" level, down to the residue at the bottom of the tanks
 - Shipping more than 1,800 cubic meters of transuranic waste to the Waste Isolation Pilot Plant

- Completing 58 percent of the construction on the Advanced Mixed Waste Treatment Project, which will prepare transuranic waste for shipment to the Waste Isolation Pilot Plant
- Treating and disposing of 2,780 cubic meters of mixed radioactive and hazardous waste off site
- Disposing of more than 25,000 cubic meters of low-level waste.

> Spent nuclear fuel has been addressed by:

- Moving 82 metric tonnes heavy metal of Three Mile Island-II spent nuclear fuel and core debris into dry storage
- Repackaging spent nuclear fuel in the Material Test Reactor Canal to prepare it for dry storage
- Emptying spent nuclear fuel from the CPP-603 underwater storage basin.

> Finally, facilities that were unused or contaminated have been addressed by:

- Decontaminating and decommissioning 103 structures, of which 223,000 square feet were contaminated.